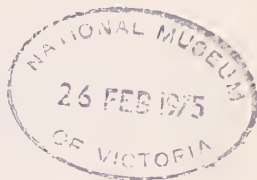


ALBATROSS ISLAND, 1973



by

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INTRODUCTION

Albatross Island is situated in the western approaches to Bass Strait, about twelve kilometres west of the northern point of Hunter Island (lat. $40^{\circ}22'S.$, long. $144^{\circ}40'E.$). It is about 1.5 km by 0.3 km and rises abruptly to a height of about 35 metres on the eastern side with a gradual downward slope to the west.

From the eastern aspect the most singular feature is a narrow, vertical-walled bay or gut, which cuts deeply into the island about 0.5 km from the north end. It terminates in a dense jumble of very large boulders. Beyond and continuing the line of this gut is a ravine which divides the island to the opposite shore. Its floor at the highest point is only a few metres above the present sea level.

On either side of the ravine and about 20 m above sea level are two large caves. Their openings are directly opposite each other and their long axes run NNE to SSW, indicating that they once formed a single cavern, which probably was cut by the action of the sea at a time when the whole island was lower in relation to the sea than at present. Each cave is about 100 m long, 15 m wide and up to 10 m high. The north cave opens on a boulder strewn gully which slopes down to a shallow bight at the NE corner of the island. The south cave opens into a large oval depression or hollow, about 100 m long and 25 m wide with precipitous walls rising to about 15 m above its floor. This natural cul-de-sac appears to have been formed by collapse of a portion of the original cave roof.

Owing to its relative isolation and exposure to the swell from the Southern Ocean, Albatross Island is difficult of access from the sea. The broken nature of the surface precludes a landing by light aircraft and the concentration of sea birds renders any attempt to land by helicopter dangerous.

Many naturalists have been interested in the island since George Bass landed there in 1798 to collect seals and albatross for fresh meat. There are numerous published references to the island and its fauna and a list is given in the appendix. The present author, together with others, succeeded in landing there for a few hours on 20 January 1960 (Macdonald and Green, 1964). On this limited visit 304 young and 4 adult White-capped Albatross were banded.

Recently the "Wild Australia Series", Special Projects, Australian Broadcasting Commission, Melbourne organised an expedition to make a film about the island and its albatross and invited me to join their party. The invitation was gratefully accepted. On 24 January 1973 the landing of ten personnel plus equipment and supplies for several weeks was successfully accomplished. Nine days were spent in filming, bird-banding, the collection of data and biological reference material and the party was picked up by fishing boat on the morning of 3 February 1973.

GEOLOGY

The following report on the geology of Albatross Island was written upon my request by Mr. F. L. Sutherland, Curator of Minerals and Rocks at the Australian Museum, Sydnev. The specimens have been lodged in the collection of the Queen Victoria Museum.

"Examination of submitted specimens and colour transparencies of Albatross Island indicate it is composed of massive, thickly bedded siliceous conglomerate, containing some minor sandstone bands. The geology of the island was previously little known.

The rock is strongly cemented and consists largely of rounded to sub-angular fragments of quartzite and white to purplish indurated slate of shale. The fragments appear identical to and may be derived from the unmetamorphosed Precambrian successions outcropping on adjacent Hunter Island. From the photographs the bedding in the conglomerate appears to dip west up to at least 45°, giving gentler ramp-like dip slope surfaces on the west coast compared with the steeper more rugged undermined cliffs on the east coast.

These facts suggest that the conglomerate belongs to the folded basement rocks of Tasmania, lying within latest Precambrian to Mid-Devonian ages. Negative support for such an age is given by the absence of any granite fragments in the rock derived from Carboniferous granite of Three Hummock Island, although pebbles of this granite presently wash up on Albatross Island beaches. The conglomerate closely resembles Cambrian and Ordovician conglomerates known on the west coast of Tasmania, but such outcrops are not known close by so that the Albatross Island occurrence is important in extending any of their palaeogeographical reconstructions. Structurally, Lower Palaeozoic rocks could be expected in this position as the Precambrian beds on western Hunters Island dip westwards and if extended would dip under any overlying Palaeozoic beds. The possibility of faults down-throwing the basement rocks west of Hunter Island also exists, based on evidence of such throws on its west side and the extension of lineaments marked by Tertiary volcanic fissure eruptions from Cape Grim through Trefoil and Steep Islands."

BOTANY

The vegetation of the island is confined to a few low growing species and lacks trees and large shrubs. Most species possess thickened leaves, typical of vegetation growing on small, exposed islands and subjected to the influence of sea spray and above average salinity.

Species collected and lodged in the Queen Victoria Museum herbarium are as follows:

FILICES:

Asplenium obtusatum, Shore Spleenwort. Three small, well separated clumps were found. Each was growing from deep sheltered crevices in the rock face.

GRAMINEAE:

Poa caespitosa, Tussock Grass. Common and well distributed over much of the top of the island especially on the light sandy soil in the vicinity of the Mutton Bird burrows.

CRUCIFERAE:

Lepidium foliosum, Sea Cress. Scattered about the island in small clumps, usually sheltered amongst the rocks.

GERANIACEAE:

Pelargonium australe, Native Perennial Pelargonium. A Few odd plants scattered about the island.

FICOIDEAE:

Disphyma australe, Round-leafed Pigface. Occurs in thick carpets over much of the island, especially in the valleys and places which receive water from run-off or seepage.

Carpobrotus rossii, Pigface. Small clumps are scattered about the island in association with the previous species.

Tetragonia implexicoma, Ice Plant. A few clumps are to be found, mostly growing from crevices or ledges where it sometimes hangs in long trailers.

UMBELLIFERAE:

Apium prostratum, Sea Parsley. A few small scattered clumps, usually in the shelter of rocks and crevices.

COMPOSITAE:

Senecio spathulatus, Rookery Senecio. Common and well distributed over the more elevated areas especially about the Mutton Bird rookeries.

APOCYNACEAE:

Alyxia burifolia, Box-leafed Alyxia. A few plants occur in the shelter of rocks and crevices.

CHENOPODIACEAE:

Chenopodium album, Fat-hen. An introduced plant occurring in a few restricted patches.

Rhagodia baccata, Coastal Saltbush. This occurs commonly, especially in the boulder strewn areas.

Salicornia quinqueflora, Samphire. Scattered about the island, especially about the crevices and steep areas.

MAMMALS

No evidence of the presence of terrestrial mammals could be found despite a careful search for droppings and other signs.

Though seals were once numerous, as evidenced in accounts of the early explorers and sealers, only odd individuals now visit the island. During our stay about five sightings were made of the Australian Fur Seal *Arctocephalus pusillus doriferus* on or near to rocks on the shore. At least three individuals were present, one of which had been tagged as a pup on Seal Rocks near the Victorian coast (pers. com. Robert Warneke).

BIRDS

Species mentioned include land birds and those sea birds breeding or resting on the island. Casual observations of sea birds seen flying past the island have been excluded.

Little Penguin *Eudyptula minor*. This bird was found in hundreds scattered over the island in burrows and rock crevices.

Their young were well advanced and some apparently had vacated their nesting sites just prior to our visit. Several adults were found moulting. Sixty-six young were flipper banded. A few had bred in or beyond the south cave and were unconcerned by our presence as they made their way past our camp to their nesting sites.

White-faced Storm-petrel *Pelagodroma marina*. Four desiccated carcasses, one of which was a well-feathered nestling, were found but live birds or other evidence of breeding was lacking.

Short-tailed Shearwater *Puffinus tenuirostris*. Burrows of this "Mutton Bird" were numerous on the more exposed areas where the sandy soil permits their establishment. This was principally the more elevated central part of the island. Hundreds and possibly thousands were breeding there, the burrows then containing large downy young.

Fairy Prion *Pachyptila turtur*. Many hundreds were found breeding in burrows, beneath the vegetation and in rock crevices all over the island. Some young were still in down, the feathers just commencing to erupt, while others were well feathered. Several had bred beneath boulders inside the cave and showed very little concern for our presence when entering and leaving to tend their young at dusk and dawn.

Diving Petrel *Pelecanoides urinatrix*. The desiccated carcass of an adult was found on top of the island. No other evidence of this species could be detected. It breeds on nearby Black Pyramid (Green and Macdonald, 1964).

White-capped Albatross *Diomedea cauta*. When Bass and Flinders discovered and named Albatross Island in December 1798, Flinders (1814) described it as appearing to be "almost white with birds". This impression was gained as he approached from the east where the high cliffs would prevent him from seeing much more than the very edge of the island. Bass landed on the north-east end and collected seals and albatross for fresh meat but gives little additional information as to the extent of the albatross colony.

George Augustus Robinson (Plomley, 1966) visited the island in October 1832 and found that "the top of the rock from one end to the other was covered with albatross". As was the case with Flinders the impression was gained as his party rowed northwards along the eastern shore where, on top of the cliffs, birds were seen perched in great numbers. Robinson stated "Originally those birds covered the whole surface of the island completely with their nests but destruction since has been very great amongst them." This depredation was the work of sealers who killed the albatross for their feathers, the product of three birds weighing a pound (0.45 gm) and which were sold to merchants in Launceston for from nine pence (8¢) to one shilling (10¢) a pound. Robinson refers to the intolerable stench occasioned by the putrid carcasses of the albatross which lay in heaps in different parts of the cavern.

It is clear from Robinson's account that the population must have originally numbered many thousands but at the time of his visit it had already suffered a significant decline due to human predation. This decline must have continued almost to the point of annihilation for, when Le Souef and Ashworth visited there in November 1894 (Le Souef, no date), they found "The largest colony contained about three hundred nests and the smallest, six." Ashworth and Le Souef (1895) estimated the total to be 400 nests - apparently just the fragmented remains of the once vast colony. On 6 November 1909 Atkinson and Armstrong (North 1914) found 250-300 nests. In December 1927 Thomson (1928) found "The birds had

evidently increased in numbers since the visit of Mr. Dudley Le Souef." In 1960 there were about 670 occupied nests (Macdonald & Green, 1964) and the 1973 visit here dicussed revealed about 1500 occupied nests (see table 1).

ROOKERY	ESTIMATED OCCUPIED NESTS	
	1960	1973
Main	500	1100
North-east	110	250
South-east	56	130
West	10	25
Total	676	1505

TABLE 1. Estimated number of occupied nests of *D. cauta* at the time of the 1960 visit (Macdonald and Green, 1964) and the 1973 visit. Figures are based upon birds banded and counts.

Exposed areas of rocks, now well beyond the limits of the main rookery, were found to have a smooth, worn, white crust. This was suspected to be evidence of the once much larger colony and samples were collected for analysis and submitted to F. L. Sutherland. His report is as follows: "The material forms whitish grey, laminated crusts on the rock and X-ray diffraction examination showed that it is basically amorphous in structure. A light element X-ray fluorescence scan showed Ca and P as major and Fe, Ti, K, Cl, S and Si as minor elements suggesting that it is probably calcium phosphate and could represent material derived from old guano deposits."

Robinson refers to such deposits when describing the rocks as being "covered with an enamel of silvery polish which I suppose to have been formed from the excrescence of the birds and is very difficult to walk on, slippery as ice." (Plomley, 1966).

The distribution of this material extends from the main rookery, being bounded by the sea cliffs to the east, the cliffs above the bay to the north and extending eastwards onto the rising ground in the centre of the island.

From the earlier published accounts it is possible to postulate on the population trend over the past 200 years (see fig.1). The decline appears to have been arrested about the beginning of the century and the colony now is slowly increasing in number, though still far below its former splendour.

The young appeared to vary in age by no more than two or three weeks. In many the wing feathers were well erupted and some young were observed beating the air as if for wing exercise. In general appearance the rookeries looked strong and healthy, with less dead birds than was the case in 1960. Some of the young were distressed by the presence of large numbers of ticks which attach to the naked skin beneath the mandible. Some severely infested chicks, which were wasted in appearance and had heavily soiled plumage, were so affected that their survival was doubtful. Under these circumstances it seemed likely

that at least some of the dead chicks found had died from this cause. The smaller colonies appeared to be more severely affected than the larger and more concentrated ones. The average mortality might approximate ten per cent. There were a few unoccupied nests in all the colonies most of which were probably the result of early nestling mortality, or egg loss. Three addled eggs were found in deserted nests two of which measured in mm 102 x 68 and 97 x 66. Silver gulls were often in close attendance during feeding to scavenge discarded or regurgitated food items.

Food samples were collected from 75 young by prompting them to vomit into a plastic bucket. The material was preserved in 4% formalin for later identification. An analysis of this material is given in table 2. Some additional material was collected at random when birds vomited during banding operations. Some samples were collected in the morning and others in the afternoon without any noticeable difference in volume and content.

<u>ITEM</u>	<u>NUMBER</u>	<u>PERCENTAGE</u>
Unidentified fish	24	32.0
Scad <i>Trachurus declivis</i>	15	20.0
Black fish (not determined)	4	5.3
Red Snapper <i>Trachichthodes gerrardi</i>	1	1.3
Cephalopoda (flesh and beaks probably of squid)	38	50.7
Cephalopoda (cuttle bone from cuttle-fish)	2	2.7
Prawns <i>Gnathophausia</i> sp. (<i>ingens</i> ?)	22	29.3
Small prawns (Euphasids?)	1	1.3
Broad Fish-louse <i>Livoneca</i> sp. (<i>raynaudi</i> ?)	2	2.7
Tongue-biter <i>Codonophilus</i> sp. (<i>imbricatus</i> ?)	1	1.3
Salp-like remains	24	32.0
Woody stems	9	13.0
Pebbles	11	14.7
Dry grass	5	6.7
Lumps of Dung	5	6.7
Opaque strands	3	4.0
Empty, except for oil	19	25.3

TABLE 2. The items found in the spewtum collected from 75 nestling albatross and the number and percentage of birds in which they were represented.

It is not suggested that the total gut contents were vomited in each sample for, to limit undue stress, each nestling was handled for only a few seconds. Though the itemised percentages may have been higher if the complete contents had been extracted, it is likely that they would have remained in the same relative order of importance. Oil was present in every sample and in 19 (25.3%) was the only material produced. It varied greatly in quantity and the colour ranged from

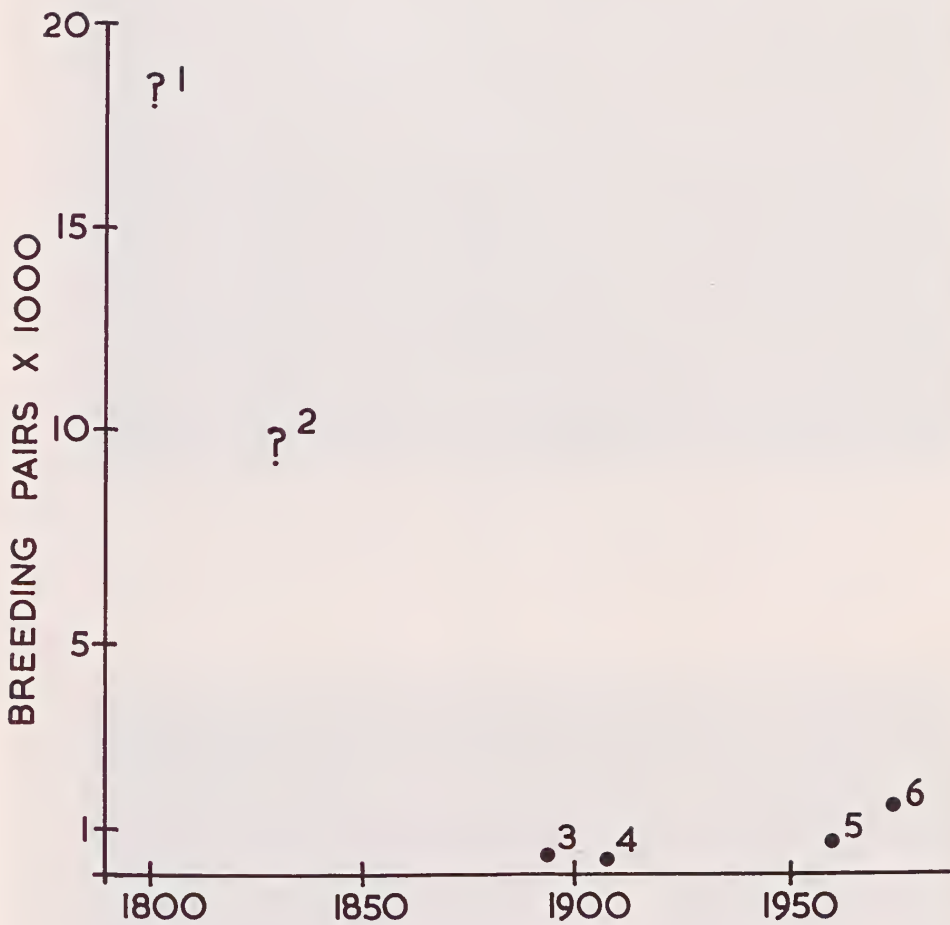


FIGURE 1. The numerical decline and partial recovery of the *D. cauta* population on Albatross Island as indicated by the account of:

- 1 Flinders; 2 Robinson; 3 Le Souef & Ashworth; 4 Atkinson & Armstrong;
- 5 Macdonald & Green; 6 the present author.



PLATE 1. Albatross Island from the East.



PLATE 2. White-capped Albatross.



PLATE 3. General view of part of the main albatross colony looking northwards.



PLATE 4. Banding of nestling albatross in 1960.

grey to yellow and orange and was apparently dependent upon the associated food. Samples were weighed and ranged from 80 gm to 1050 gm. The stage of digestion of most of this material was such as to render determination difficult, if not impossible.

Nematodes were present in almost every sample and in some were very numerous. These have been determined as *Stomachus* sp., probably *S. diomedea* (Family ANISAKIDAE), which have previously been recorded in other albatross species (Munday & Green, 1972).

Scale fish, squids and prawns were most numerous with three species of fish being represented. When identifiable fish remains were present, the remaining unidentifiable pieces of fish from that sample were concluded to be of that species. Forty four (58.7%) of the samples contained fish remains. If the unidentifiable samples are attributed to Scads and the undetermined black fish in the proportion of three to one as indicated in table 2 then 33 (44%) of the samples contained Scads and 11 (14.7%) contained black fish. The state of digestion of the fish in the samples suggested that they had been swallowed head first. In the case of large specimens digestion had progressed from the head anteriorly as the fish slipped slowly into the bird's gut, partial digestion occurring before being presented to the young. Several almost complete caudal sections were found but skull fragments were rarely present. Two small Red Snapper of total length of 110 mm (one from the series sampled and one otherwise collected) were almost entire and digestion had commenced evenly over their whole length, their smaller size apparently having permitted the bird to completely swallow these fish. The vertebrae was the last section to digest. The robustness and length of some vertebral sections indicated that fish in excess of 400 mm long are often taken and passed to the young. At least two samples contained Scads which would have been of this size.

The prevalence of squid remains in the gut samples together with vast numbers of their mandibles scattered about the vicinity of the rookeries indicates that this is an important food item. The mandibles do not digest but apparently pass through with faeces or are regurgitated. In many samples mandibles were the only remaining evidence of the squid. The greatest number taken from any one individual was 11 (in two instances). A high percentage of these could not be matched as pairs and it was usually concluded that the number of individuals represented was more than half of the mandibles present. They varied greatly in size, ranging from a length of 8 mm to 40 mm.

A freshly regurgitated portion of squid comprising the head and basal parts of the arms was picked up in the middle of the main rookery. It measured 150 x 80 x 80 and weighed 350 gm and apparently had been too large for the young bird to swallow. One squid, of a total length of 83 mm was determined as *Nototodarus gouldi*, a common species in Bass Strait.

Prawn remains usually consisted of parts of the exo-skeleton only and were comprised of individuals which would have been about 150 mm in body length.

The Broad Fish-lice may have been inadvertently swallowed while still attached to host fish. Their relatively undigested state in relation to the rest of the sample suggested that they were taken separately, though the possibility of their being more resistant to digestion cannot be discounted.

Small prawns, probably belonging to the Family PANDALIDAE were present in considerable quantity in one sample, which also contained the remains of a large black fish. This suggests the possibility that it may have initially been swallowed by the fish which in turn was swallowed by the albatross.

The Salp-like remains were mostly of about 30 x 5 x 3 mm but some larger specimens were also found. They were mostly entire and appeared to be slow to digest.

Woody plant stems to 35 mm long, a little dry grass, pebbles ranging in size from about 50 x 30 x 20 mm to 3 x 2 x 2 mm and lumps of dung of about the same dimensions were apparently taken from the vicinity of the nest and not fed by the adults. The young were sometimes noticed manipulating such items in their beaks but swallowing of these was not initially suspected. Seventy-eight pebbles was the greatest number found in a single sample.

One Rock-carb *Nectocarcinus integrifrons* was collected from the vomit of a young bird during banding operations and is an additional item to those in table 2.

Adults were found about the colonies at all times but it was noticeable that the number increased in late afternoon and evening with some still returning after dark. Almost invariably their approach to land and flight initiation was made into the wind. This obviously assists in reducing landing speed in the first instance and in providing lift and buoyancy in the latter. Returning birds usually made their landing beside or near to their nests, while flights were usually initiated from a high ledge or cliff top from which the birds could drop into the wind. No evidence could be found to support an old theory that the pit in the centre of the island acted as an albatross trap, resulting in the death of many birds. This appears to have been mis-interpreted by some visitors due to the accumulation of albatross remains deposited there by the sealers.

On a number of occasions adults were observed to escape from the pit, either by working their way up the ledges or simply by walking out through the south cave.

A watch was kept by all members of the party for banded adults but only one was found. This bird was sighted on one occasion when feeding a young. It was captured and found to have been banded as a nestling on 20 January 1960. The aluminium band was heavily worn, mostly on the inside and was replaced by a new band. The lack of sightings of banded adults suggests that it is now unlikely that further recoveries from the 1960 banding will be made. Table 3 presents details of the recoveries to date. Nine hundred and ninety-eight young were banded during the 1973 visit and table 3 includes the recoveries from these birds to the time of submission.

Black Cormorant *Phalacrocorax carbo*. One seen once on the north-west point of the island.

White-breasted Cormorant *Phalacrocorax fuscescens*. Up to six were seen on several occasions on the north-west point.

Silver Gull *Larus novaehollandiae*. Over 100 were resident on the island during our visit. A small rookery of about 25 pairs was found on the north end and another of about 15 pairs on the south end. Breeding had almost finished and most young were flying. Food is regularly scavenged from the albatross colony when spilling from regurgitation occurs.

Pacific Gull *Larus pacificus*. Two pairs were resident on prominent points on the south end of the island. Though their nests or young were not found, their behaviour indicated that they were probably breeding.

Sooty Oystercatcher *Haematopus unicolor*. Four were regularly seen round the rocky shore line.

White-faced Heron *Notophoxyx novaehollandiae*. One was seen on several occasions on the southern point.

Swamp Harrier *Circus approximans*. Odd birds were seen flying above the island on most days. Soon after sunrise on 2 February 1973 at least 12 were counted slowly moving northwards. Though some came low over the island none attempted to land and none showed interest in the albatross. The majority appeared to be dark in colour and therefore young individuals.

White-breasted Sea-eagle *Haliaeetus leucogaster*. An adult pair was seen on numerous occasions. Several nests were found on the cliffs above the bay and one appeared to have been occupied in the current season. The birds were shy, appearing to be wary of our presence.

Nankeen Kestrel *Falco cenchroides*. Two were seen on 1 February 1973 and another on the following day.

BAND NO.	DATE OF BANDING	DATE OF RECOVERY	HOW RECOVERED	PLACE (b.p.= BANDING PLACE)	DISTANCE (km) and DIRECTION
140/01055	19/1/1960	-5.1960	Dead	At b.p.	-
140/01033	"	9.6.1960	Alive	19 km E. Woollongong N.S.W.	885 N.E.
140/01044	"	15.7.1961	Dead	West Rosebud beach, Port Phillip Bay, Vic.	225 N.
130/14077	"	6.11.1961	Dead	Maatsuyker Is., Tas.	386 S.S.E
130/13082	"	10.5.1962	Alive	Robe, S.A.	563 N.W.
"	"	17.5.1962	Dead	Near Southend about 80 km S.E. of Robe, S.A.	485 N.W.
130/13023	"	7.11.1962	Alive	At b.p.	-
140/01041	"	7.11.1962	Dead	At b.p.	-
130/13019	"	1964	Dead	No data provided by finder	
130/14076	"	15.11.1967	Dead	16 km N.W. b.p.	16 N.W.
130/14056	"	13.4.1969	Alive	113 km S. Cape Woolamai, Vic.	113 N.N.E
130/14028	"	5.10.1969	Alive	16 km W. Currie King Is.	97 W.N.W
1070	"	26.1.1973	Alive	At b.p.	-
130/22272	31/1/1973	11.4.1973	Alive	Between Albatross Is. & South Black Rock	11 S.
140/42152	"	13.4.1973	Alive	5 km N.W. North Black Rock	8 N.N.W
140/05188	"	14.4.1973	Dead	8 km W. Hunter Is.	5 E.
140/02028	"	24.4.1973	Dead	5 km S. of Arthur River N.W. Tas.	80 S.
130/22142	"	31.4.1973	Dead	Three Hummock Is., N.W. Tas.	19 E.S.E
140/02023	"	17.5.1973	Dead	Barwon Head, Vic.	233 N.
130/22209	"	14.7.1973	Dead	3 km S. of West Pt., N.W. Tas.	64 S.
140/42152	1/2/1973	13.4.1973	Alive	5 km N.W. of North Black Rock, Tas.	5 S.
140/42110	"	30.4.1973	Dead	16 km N. Kingston, S.A.	580 N.W.

TABLE 3. Recoveries of White-capped Albatross banded on Albatross Island, Tasmania.

Welcome Swallow *Hirundo neowena*. Three were seen flying northwards over the island. An unoccupied nest was found on a small ledge inside the northern entrance of the south cave.

Australian Tree-martin *Hylochelidon nigricans*. A group of five and another of two were seen flying northwards over the island.

Australian Pipit *Anthus australis*. One was seen on several occasions on the top of the island.

Raven *Corvus tasmanicus*. Up to three were seen several times.

Blackbird *Turdus merula*. One was seen on several occasions, usually in or about the entrance to the northern cave.

Skylark *Alauda arvensis*. One was seen twice on top of the island.

Starling *Sturnus vulgaris*. Approximately 100 were living on the island. During the day they were scattered in several small flocks.

FISH

A number of fish were collected at various points round the island by D. Milledge and the following specimens having been added to the collections of the Queen Victoria Museum.

Trachipterus arawatae, Ribbon Fish. One specimen (1973/5/59) was speared about 50 metres off shore from the bay. It was observed swimming with the longitudinal axis vertical which, together with its sluggish nature, suggested that it may have been sick or injured.

Latridopsis forsteri, Bastard Trumpeter (1973/5/38). Two speared on the western side.

Scorpius aequipennis, Sea Sweep. Two (1973/5/39) speared in the bay.

Atypichthys strigatus, Mado. Three (1973/5/29) speared in the bay.

Bovichtus variegatus, Dragonet. One specimen (1973/5/60) was caught by hand in a sheltered tidal rockpool on the south-west of the island.

Pseudolabrus cyanogenys, Parrot Fish. One (1973/5/37) speared in the bay.

Aracana aurita, Shaw's Cowfish. One (1973/5/35) collected by hand in the bay.

REPTILES

Lizards were found to occur all over the island and were particularly numerous in the valley between the east and west gulches, in the "pit" and near the cave entrances. Two species were collected for the collections of the Queen Victoria Museum.

Leiolopisma pretiosum, Small-scaled Skink. This was by far the more numerous species. Fifty-two specimens (1973/3/2) being collected.

Leiolopisma metallicum, Metallic Skink. Found living in close association with the preceding species. Four specimens (1973/3/3) were collected. The colour pattern is similar to *L. metallicum* from Curtis Island and parts of western Tasmania but differs from those found elsewhere in Bass Strait (pers. com. Peter Rawlinson).

INVERTEBRATES

The following invertebrates were collected and preserved for the collections of the Queen Victoria Museum.

ARCHAEOGNATHA (Rockjumpers). Several specimens were collected when they jumped from crevices in overhanging rocks.

ODONATA (Dragonflies). One large specimen collected.

BLATTODEA (Cockroaches). Two specimens of one species were collected.

FORMICIDAE (Ants). One medium size colonial species of ant was found beneath stones over most of the island.

DERMAPTERA (Earwigs). A number of specimens were collected from all over the island.

ORTHOPTERA (Crickets). One mole cricket (GRYLLotalpidae) was collected after having been captured by a lizard. One field cricket (GRYLLidae) was also collected.

COLEOPTERA (Beetles). Four species were collected including a small click beetle (ELATERIDAE) and some larvae.

DIPTERA (Flies). Several species were observed but only one was collected.

LEPIDOPTERA (moths). Several species were observed but not collected. Larval cases of the moth family PSYCHIDAE were plentiful.

ARANEIDA (Spider). Two species of spiders were collected one of which belonged to the family DIPLURIDAE. This was common all over the island in silken lined holes in the ground. It was found to be nocturnally active some being collected at night on the walls of the tents. One member of the expedition was bitten, but without harmful effect.

SCORPIONIDAE (Scorpions). Three specimens of one species collected.

DECAPODA (Crabs). *Nectocarcinus tuberculatus*. Rough Rock-crab. Three were collected from between boulders in the bay at low tide.

Leptograpsus octodentatus Burrowing Shore-crab. Occurs commonly over most of the island, hiding by day in burrows or beneath stones or vegetation. It was found to be a nocturnally active scavenger.

ISOPODA Four species of terrestrial isopods were collected beneath stones and vegetation. These were *Ligia australiensis* Dana, 1853, *Deto marina* (Chilton, 1884), *Plymphiloscia ulverstonensis* Green, 1961 and *Cubaris tasmaniensis* Green, 1961. The last mentioned, of which only one female was collected, has been identified as an atypical example of this species.

Aquatic isopods belonging to the superfamily ASELOTA were also collected.

AMPHIPODA. Three species of marine amphipods were collected along the shore line.

MOLLUSCA. Fifteen species were collected alive from the shore line. These were as follows:

AMPHINEURA
Sypharochiton pellis-serpentis (Quoy & Gaimard, 1835)
 GASTROPODA
Austrocochlea concamerata (Wood, 1828)
Subnivalia undulata (Solander, 1786)
Melanerita melanotragus (Smith, 1884)
Cominella lineolata (Lamarck, 1809)

Lepsiella vinosa (Lamarck, 1822)
Dicathais textilosa (Lamarck, 1822)
Siphonaria diemenensis Quoy & Gaimard, 1833
Chiazacmea flammea (Quoy & Gaimard, 1834)
Patelloida latristrigate (Angas, 1865)
Cellana solida (Blainville, 1825)
Patellanax peroni (Blainville, 1825)
 BIVALVAVIA
Electroma georgiana (Quoy & Gaimard, 1835)
Xenostrobus pulex Lamarck, 1819
Brachidontes rostratus (Dunker, 1856)

COELENTERATA. Two specimens of one species of anemone were collected from a rock pool.

ECHINODERMATA. Four specimens of the sea star *Patiriella exigua* were collected from a rock pool.

ECTOPARASITIC FAUNA

Because of their special interest and association the ectoparasites are listed separately.

MITES

Haemolaelaps fahrenheitsi from *Pachyptila turtur*.

TICKS

Ixodes eudyptidis from *Diomedea cauta* This tick was extremely prevalent, being present in hundreds in the nests beneath the young and fastened to the bare skin beneath their bills and to a lesser extent, on the feet. Ticks collected from the necks of *D. cauta* on Albatross Island in 1960 were determined as *I. auritulus* (Macdonald & Green 1963). No *I. auritulus* was found in the 1973 samples nor was *I. eudyptidis* found in the 1960 sample.

I. kohlsi from *Eudyptula minor*.

LICE

Harrisoniella sp. from *Diomedea cauta*.

Perineus sp. (Prob. *P. circumfasciatus*) from *Diomedea cauta*.

FLEAS

Parapsyllus australiacus from *Pachyptila turtur* and also from *Diomedea cauta*. This flea was extremely prevalent in the nests of *D. cauta*.

Parapsyllus taylori from *Pachyptila turtur*.

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